

IN THE CLAIMS:

- 1) (Currently amended) Lock system for ~~a door (11), hatch,~~  
~~etc., especially~~ for motor vehicles (10), the lock system  
comprising,
- ~~with~~ a lock (15) on the door (11) to be actuated by a  
handle (20);
  - ~~with~~ two electrodes (51, 52) ~~for~~ comprising an inner and  
an outer electrode with two capacitative sensors (61, 62)  
and shielding (53) in the handle (20), the shielding being  
located between the two electrodes, ~~which~~ wherein the  
electrodes generate two spatially separate electrical  
fields at least for certain periods of time, the electrical  
fields comprising:
  - ~~namely,~~ an inner field (30), generated in ~~the~~ an  
intermediate space (17) between the handle (20) and the  
vehicle (10) by ~~the one electrode~~ (the inner electrode  
(51), and
  - an outer field (60), generated between the handle (50)  
and the outside environment of the vehicle (10) by the  
~~other electrode~~ (the outer electrode (52));
  - ~~with~~ an electronic access authorization device, ~~the~~  
having a stationary part (63) ~~of which is~~ installed in the  
vehicle (10) and electrically connected to the two  
electrodes (51, 52) of the two sensors (61, 62), ~~whereas~~

and a the mobile part (60) of the device is adapted for being carried by the an authorized person;

-- ~~where~~ wherein the one sensor (61) with the inner electrode (51) responds when a human hand arrives in ~~the~~ an area of the inner field (50) and initiates a first function in the lock (15) or in the vehicle after a data exchange between the mobile part (64) and the stationary part (63) has been successfully completed; and

-- ~~where~~ wherein the other sensor (62) with the outer electrode (52) becomes active when the hand arrives in ~~the~~ an outer field (60) within a certain defined minimum distance from the handle (20) and then initiates a second function in the lock (15) or in the vehicle, further comprising:

~~wherein~~

-- three circuit board parts provided with conductive traces (44, 45, 46) ~~are~~ and connected to each other by film hinges (37, 38); ~~in that wherein~~

-- the inner electrode (51) is mounted on the first circuit board part, the outer electrode (52) is mounted on the second circuit board part, and the shielding (53) is mounted on the third circuit board part; ~~in that wherein~~

-- the three circuit board parts ~~can be converted from~~ are movable between a large, flat, spread-out condition,

allowing the production of the two electrodes (51, 52) and the shielding (53), ~~to~~ and a compact, collapsed condition by folding them together into a three-layer folded product (40); and ~~in that~~ wherein

-- the finished folded product (40) forms a unit (30), which is integrated as a single structural unit into the handle (20).

- 2) (Currently Amended) Lock system according to Claim 1, wherein, for ~~its~~ carrying out the first function, the lock (15) is switched to its release position and for ~~its~~ carrying out the second function, the lock is switched to its locking position; and in that

~~as a result,~~ whereby the one sensor (61) functions as the opening sensor and the other sensor (62) functions as the locking sensor.

- 3) (Currently Amended) Lock system according to Claim 1, wherein, in ~~the~~ a finished, folded product (40), the three circuit board parts rest on each other over essentially their entire surface areas.

- 4) (Currently Amended) Lock system according to Claim 1, wherein the three circuit board parts are ~~designed as~~

composed of a single piece consisting of the three adjacent sections (31, 32, 33) of the overall circuit board (35); and ~~in that~~ wherein

-- the overall circuit board (35) is divided into three sections (31, 32, 33) by foldable film hinges (37, 38).

- 5) (Previously Presented) Lock system according to Claim 4, wherein at least one conductive trace (44, 45) passes across at least one of the film hinges (38, 37) and connects two or all three sections (31, 32, 33) of the folded product (40) to each other electrically.
- 6) (Currently Amended) Lock system according to Claim 4, wherein the overall circuit board (35) has two linear film hinges (37, 38),  
-- which are parallel to each other and divide the overall circuit board (35) into three strip-like sections (31, 32, 33).
- 7) (Currently Amended) Lock system according to Claim 1, wherein the overall circuit board (35) or the circuit board parts consist of a flexible leaf; and in that,  
-- when the folded product (40) is being installed, the flexible leaf is able to bend (67) to conform to ~~the~~ a

curvature (66) of the handle (20).

- 8) (Previously Presented) Lock system according to Claim 1, wherein the conductive traces (44, 45, 46) and/or the conductive areas (41, 42, 43) of the inner electrode (51), of the outer electrode (52), and of the shielding (53) are located on the same flat side (36) of the overall circuit board (35) or leaf.
- 9) (Previously Presented) Lock system according to Claim 1, wherein the conductive areas (41, 42, 43) of the inner electrode (51), of the outer electrode (52), and/or of the shielding (53) cover the entire surface.
- 10) (Previously Presented) Lock system according to Claim 1, wherein the conductive areas (41, 42, 43) of the inner electrode (51), of the outer electrode (52), and/or of the shielding (53) are produced in the form of a grid of conductive traces.
- 11) (Currently Amended) Lock system according to Claim 1, wherein the conductive areas (41, 42, 43) of the inner electrode (51), of the outer electrode (52), and/or of the shielding (53) are ~~made out~~ of conductive traces of any

~~desired~~ a geometric pattern.

- 12) (Previously Presented) Lock system according to Claim 1, wherein the conductive traces (44, 45, 46) and the conductive areas (41, 42, 43) of the electrodes (51, 52) and of the shielding (53) are produced on the overall circuit board (35) or the leaf by a MID technique (Molded Interconnect Device).
- 13) (Previously Presented) Lock system according to Claim 1, wherein the conductive traces (44, 45, 46) and the conductive areas (41, 42, 43) of the electrodes (51, 52) and of the shielding (53) on the overall circuit board (35) or on the leaf are produced by hot foil stamping.
- 14) (Previously Presented) Lock system according to Claim 1, wherein the conductive traces (44, 45, 46) and the conductive areas (41, 42, 43) of the electrodes (51, 52) and of the shielding (53) on the overall circuit board or on the leaf are produced by a two-component injection-molding technique.
- 15) (Previously Presented) Lock system according to Claim 1, wherein the individual layers of the finished folded

product (40) are held together by snap connections (27, 28).

- 16) (Currently Amended) Lock system according to Claim 15, wherein the snap connections consist of two connecting halves (27, 28), which are ~~designed as~~ integral parts of the circuit boards or sections (32, 33) of the overall circuit board (35).
- 17) (Currently Amended) Lock system according to Claim 16, wherein ~~the~~ one half of the connection consists of a projecting hook (27), whereas the other consists of a hole (28) in the circuit board part or in a section (32) of the overall circuit board (35); and in that  
-- the hook (27) is flexible and, in the finished product, is not only aligned with the hole (28) but also engaged with the hole (28) to produce an effective retaining action.
- 18) (Currently Amended) Lock system according to Claim 1, wherein the overall circuit board (35) or leaf has a electrical components mounted on the fourth section (34), which serves as a carrier for the electrical components (48); and in that

-- the electrically conductive traces (44, 45, 46) of at least one of the other sections (31, 32, 33) of the folded product (40) are electrically connected to these components.

- 19) (Previously Presented) Lock system according to Claim 18, wherein, although the fourth section (34) is designed as an extension of one of the three sections (33) belonging to the folded product (40), it lies outside the folded area (39).
- 20) (Currently Amended) Lock system according to Claim 18, wherein the electrical components (48) mounted on the fourth section (34) ~~are used to~~ evaluate the data (65) exchanged between the mobile part (64) and the stationary part (63) of the access authorization device.
- 21) (Previously Presented) Lock system according to Claim 18, wherein the components (48) mounted on the fourth section (34) comprise at least some elements which serve to switch the lock (15) and/or actuators in the vehicle between a first and a second function.
- 22) (Previously Presented) Lock system according to Claim 18,



wherein the electrical components (48) provided on the fourth section (34) include at least some of the transmitting and/or receiving elements (63), which are used for the data exchange (65) between the mobile part (64) and the stationary part of the access authorization device.

23) (Previously Presented) Lock system according to Claim 1, wherein the fourth section (34) provided with the electrical components (48) is a component of the preassembled unit (30), which is inserted into a cavity (23) in the handle.

24) (Previously Presented) Lock system according to Claim 1, wherein the fourth section (34) provided with the electrical components (48) is a component of the preassembled unit (30), which is laid as an insert into the injection mold for the injection-molding of the handle (20) and is enclosed on all sides by the injection-molding compound during the molding process,

-- where the unit (30) is provided with projecting electrical cables (58) or electrical contacts (59), which project out from the injection-molding compound.